

DERWENT-ACC-NO: 2002-162221

DERWENT-WEEK: 200452

COPYRIGHT 2006 DERWENT INFORMATION LTD

TITLE: Folding tablet arm chair desk

INVENTOR: JUNG, K; JEONG, K H

PATENT-ASSIGNEE: JUNG K[JUNGI] , JEONG K H[JEONI]

**PRIORITY-DATA: 2001KR-0050121 (August 16, 2001) , 2001KR-0049712
(August 13,
2001)**

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-
IPC				
AU 2002323830 A1	March 3, 2003	N/A	000	A47B
003/14				
KR 2001088648 A	September 28, 2001	N/A	001	A47B
003/14				
WO 2003015577 A1	February 27, 2003	E	000	A47B
003/14				

**DESIGNATED-STATES: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH
CN CO CR CU CZ
DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP
KZ LC LK
LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU
SD SE SG SI SK
SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW AT BE BG CH CY CZ
DE DK EA EE
ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL
SZ TR TZ UG
ZM ZW**

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
AU2002323830A1	N/A	2002AU-0323830	August 9, 2002
AU2002323830A1	Based on	WO2003015577	N/A
KR2001088648A	N/A	2001KR-0050121	August 16, 2001
WO2003015577A1	N/A	2002WO-KR01523	August 9, 2002

INT-CL (IPC): A47B003/14**RELATED-ACC-NO: 2002-162204****ABSTRACTED-PUB-NO: KR2001088648A****BASIC-ABSTRACT:**

NOVELTY - A folding tablet arm chair desk is provided to stably support a tablet, to effectively utilize a room when the tablet is used, to allow the folding tablet arm chair desk to occupy the smallest space when the tablet is not used, and to keep articles in a hole formed on the tablet.

DETAILED DESCRIPTION - A folding tablet arm chair desk includes a rotating tablet part(17) and a fixed tablet part(20). The rotating tablet part and the fixed tablet part are connected to each other in such a manner that the rotating tablet part and the fixed tablet part is collapsible with a hinge. The rotating tablet part has a hole for keeping articles. The combination tablet and chair is collapsed or spread according to user's desire.

CHOSEN-DRAWING: Dwg.1/10**TITLE-TERMS: FOLD TABLET ARM CHAIR DESK****DERWENT-CLASS: P25**

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 February 2003 (27.02.2003)

PCT

(10) International Publication Number
WO 03/015577 A1

(51) International Patent Classification⁷: **A47B 3/14**

(21) International Application Number: PCT/KR02/01523

(22) International Filing Date: 9 August 2002 (09.08.2002)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
2001-49712 13 August 2001 (13.08.2001) KR
2001-50121 16 August 2001 (16.08.2001) KR

(71) Applicant and

(72) Inventor: **JUNG, Kwon-Ha** [KR/KR]; 1st floor, 134-107
Garibong 1 Dong, Guro-Gu, 152-801 Seoul (KR).

(74) Agent: **KO, Kwang-Ok**; Room 912 Union Center B/D
837-11 Yeoksam-dong, Kangnam-gu, 135-754 Seoul (KR).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK,
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,
MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN,
YU, ZA, ZM, ZW.

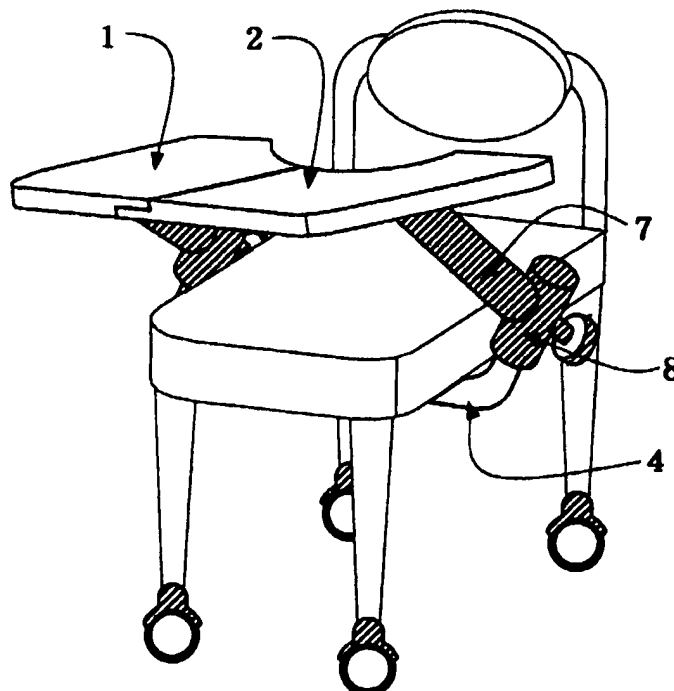
(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK,
TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CHAIR WITH A TABLE



(57) Abstract: The present invention relates to a chair with a table, more particularly to a swingable desk, a foldable desk or a swingable and foldable desk having a separable desk splittable to the right and left direction being installed on a chair frame directing to the symmetrical structure, and the combined desk with chair under the present invention includes an opening and closing structure at least at one part of the separable desk so as to provide the comfortable and stable feeling in a psychological meaning, and is devised to open and close the separable desk conveniently for coming in and out from chair.

WO 03/015577 A1

CHAIR WITH A TABLE**Technical Field**

The present invention relates to a chair with a table, more particularly to a
5 swingable desk, a foldable desk or a swingable and foldable desk having a
separable desk splittable to the right and left direction being installed on a chair
frame directing to the symmetrical structure, and the combined desk with chair
under the present invention includes an opening and closing structure at least at
10 one part of the separable desk so as to provide the comfortable and stable feeling
in a psychological meaning, and is devised to open and close the separable desk
conveniently for coming in and out from chair.

Background Art

The present invention directed to devise a chair with a table. According to
15 the prior art of the present invention as shown on Fig. 30, it shows that a fixed
desk is attached on the right or the left part of a foldable chair. The combined desk
having chair according to the prior art is also foldable simultaneously with the
foldable chair frame. In other words, more specifically speaking, a seat being
combined to the foldable chair frame is equipped with an interlocking linkage so
20 that it makes available simultaneous folding procedure with the actuation of the
seat member along the upper directional motion since the mutual interaction of the
seat member is occurred with the motion of the interlocking linkage. But this kind
of a foldable desk in the prior art has a problem in that it does not provide sufficient
surface area for the working space due to the structural limit related to the single
25 attachment of desk. If the size of the combined desk increase, the desk structure
to combine with the chair frame according to the prior art would be unstable.

Disclosure of Invention

30 The present invention relates to a chair with a table. More specifically,
the present invention directed to devise a separable desk splittable into

one part or two parts ,which is securely supported by a desk supporting member being attached on chair frame, and to comprise an opening & closing means for opening and restoring one part of the separable desk at least in order to provide suitable entrance space for coming in and out to user.

5 The opening & closing means for the separable desk under the present invention includes a restriction means for the rotational scope under the swing motion of the separable desk. The restriction means for rotational scope under the present invention mainly comprises a swingable member, and the swingable member is designed to restrict to rotate within the preset rotational range.

10 The combined desk with chair according to the prior art manifestly has a structural problem for increasing the surface area of desk. But nowadays, a user demands more spacious desk due to the common use of a notebook computer for an example. According to the present invention, the embodiments of the separable desk in various ways secures more spacious area by splitting the separable desk
15 into two parts. Accordingly, the present invention provides sophisticated technologies in connection with the separable desk splittable into two parts in order to improve the deficiency of the prior art.

First of all, in order to devise a new mechanism for a separable desk having a chair according to embodiment of the present invention, one should
20 inevitably encounter a problem regarding suitable space for coming in and out from the seat. Due to the above mentioned problem, a separable desk splittable into two parts with chair according to the present invention should be equipped with an opening & closing means locating at one part of the separable desk at least in order to provide the suitable space for coming in and out from the
25 combined seat. Accordingly, depending on the structural equipment for the opening & closing means installed on the separable desk, the separable desk combined with chair would be classified as two kinds of operational type namely, a single operational desk type or a mutual desk operational type.

In order to accomplish the structure of opening & closing means according
30 to present invention, structural embodiments of a swingable desk, a foldable desk or a swingable and foldable desk are introduced. And so as to store the combined separable desk within minimized space or to move conveniently, the combined

separable desk is detachably connected with chair frame. Furthermore so as to fit with an user's body at the sitting position or any necessity, the separable desk having a sliding means for gap adjustment is to be formed as slideable relative to a chair frame according to back and forth direction, or a seat having a sliding means
5 for gap adjustment is also to be formed as slideable in connection with a chair frame according to the back and forth direction.

A supporting edge being formed along the boundary of right and left separable desk and a locking device thereof are configured so as to enhance the stability of the separable desk and the coupling of the right and left desk of the
10 separable desk.

The locking device for the separable desk is classified into two parts namely, a left locking device and a right locking device. The configuration of the locking device is designed to have an alternating structure and to join one after another. A typical example of the above mentioned locking device is a concave
15 and convex shape along the boundary of the supporting edge. The shape of concave and convex is formed along the boundary of the supporting edge at the right and left separable desk for the joint of alternating combination as a type of male and female junction.

A swingable desk, a foldable desk or a swingable and foldable desk related
20 to the structure of opening & closing means under the present invention would be described through various illustrations. Firstly, the terminologies for the common use under the present invention hereinafter, for examples a slant member, a swingable desk, a foldable desk and a swingable and foldable desk will be defined.

The slant member under the present invention is designated to define a
25 protrusive member which is tightly combined to a leg, a backboard or a post of a chair frame.

Moreover, the slant member defined hereinafter as the protrusive member means all protrusively declined member relative to the horizontal line of the chair seat, but the declination angle of the slant member relative to the horizontal line
30 contains all angles including horizontal and vertical.

The slant member designed to configure at a lateral part of chair frame, or a seat bottom of chair frame or to be formed on a behind part of backboard chair.

The most desirable and popular configuration of the slant member is devised to combine at a bottom seat and designed to configure protrusively to the lateral part of chair frame.

In addition, the structure of the slant member can be devised so as to
5 detach easily from chair frame. The main reason for the detachable function of the separable desk from chair frame is that an user wants to use the chair only without using of the separable desk depending on the usages.

Another advantage for the detachable function of the separable desk would bring the reduction of delivery fee, and furthermore the detachable function of
10 separable desk from chair frame facilitates the movement itself.

Due to the detachable function of the separable desk, only the separable desk can be replaceable when the desk is damaged without the whole exchanging of the combined desk with chair.

As a special form of the slant member, the slant member is referred as a
15 vertical member when the slant member make a right angle.

For this special case, the rotational axis of a swingable member make a right angle also. Accordingly a desk supporting member which supports the combined desk rotates along the horizontal surface pivoting the vertical axis.

For an example, the representative illustration for the formation of slant
20 member relates to a H-shaped front leg being formed on chair frame.

Two front legs are to be shaped as a linear or a curvilinear form and these two legs are connected by a coupling member to form a H-shaped appearance.

Two rear legs are connected directly to the above mentioned coupling member or the front legs and swingable members are attached on the upper edge
25 of the H-shaped front legs for the rotational movement of separable desk.

A swingable desk according to an embodiment of the present invention is directed to provide an operational facility for coming in and out from chair seat in a convenient way to user. And the swingable desk is also aimed to provide and to define a structural member to support the separable desk and to rotate the desk
30 supporting member as an axis of the slant member.

Of course, the swingable desk can be devised to attach and detach from the slant member easily and to work with the operation of a swing member being

combined on the slant member.

Analogous to the above mentioned swingable desk, a foldable desk according to an embodiment of the present invention is directed to provide an operational facility for coming in and out from chair in a convenient way to user.

- 5 And the foldable desk is also aimed to provide and to define a structural member to comprise a fixed part and a rotatable part. These two parts are connected with a hinge member in order to broaden the desk surface in maximum by spreading the rotatable part from the fixed part.

- 10 A groove for a desk cabinet can be formed at the fixed part or the rotatable part of the foldable desk. Depending on the usages, the foldable desk can be combined only one side of chair frame or both sides of chair frame in order to use the maximum area of the foldable desk.

For this case, these two separated parts are desirable to meet that two edges are contacting at the center position when two rotatable parts are spreaded.

- 15 Of course, same as for the swingable desk, the foldable desk can be devised to attach and detach from the slant member easily too.

The above mentioned fixed part of the foldable desk is directly attached on the lateral part of chair frame or indirectly attached on the lateral part through the desk rotating member.

- 20 In the case of the directly attached on the lateral part of chair frame, the opening and closing for the separable desk is achieved by the folding operation of the rotatable part onto the fixed part. In the case of the indirectly attached on the lateral part through the desk rotating member, the opening and closing for the separable desk is achieved by the folding operation of the rotatable part onto the
25 fixed part or the rotational operation of the desk rotating member.

- Analogous to the above mentioned swingable desk or the foldable desk, a swingable & foldable desk according to an embodiment of the present invention is directed to provide an operational facility for coming in and out from chair in a convenient way to user. And the swingable & foldable desk is also aimed to
30 provide and to define a structural member which has a swingable member attached on the slant member with the foldable desk in order to support the separable desk and to rotate the foldable desk as an axis of the slant member.

Of course, for this case, the swingable member can be devised to attach and detach from the slant member easily, and further the slant member also can be attached and detached from chair frame too.

Summarizing embodiments of the present invention, the illustrative
5 applications under the present invention can be classified roughly as three different types of aspect.

Firstly, there is a type for the separable desk which can be divided into two desk parts, and only one desk part has the structure of opening & closing means being installed on the chair frame without having the opening & closing on the
10 other part.

Secondly, there is a type for the separable desk which can be divided into two desk parts, and both desk parts have the structure of opening & closing means being installed on the chair frame.

Thirdly, there is a type for the separable desk which has only one desk part,
15 and the desk has the structure of opening & closing means being installed on the chair frame.

The above mentioned three aspects of the present invention can be generally applied to the various system regarding a chair having the swingable desk, a chair having the foldable desk, a chair having the swingable & foldable
20 desk, a foldable chair having the swingable desk, a foldable chair having the foldable desk or a foldable chair having the swingable & foldable desk.

In addition to the above mentioned without varying the embodiment of the present invention, these three kinds of aspect under the present invention can be also widely applied to the various technologies regarding the attach & detach
25 technique for the swingable member, the attach & detach technique for the slant member, the combination technique of the slant member to the swingable member, technique of the restriction means for rotational scope with the swingable member, technique of the sliding means for gap adjustment. technique for comprising the supporting member, and the locking and combination techniques for the separable
30 desk.

The present invention can be applied for the various types of chair without varying the embodiment of the present invention which relates to a desk supporting

member. Including a foldable chair as mentioned above, It can be also applied to any kind of chair for examples, a wheel chair, an electrically operated chair and an ordinary chair. Furthermore a table cabinet can be formed as a sliding type on the below portion of the separable desk to enhance the convenience of user.

5 The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the present invention.

10

Brief Description of Drawings

Fig 1 is an illustrative view for a swingable desk being formed as a separable desk.

Fig 2 is an explanatory drawing for Fig. 1

15 Fig 3 is an illustrative view for a swingable desk being formed on a foldable chair.

Fig 4 is an illustrative view of a foldable chair having a swingable member being installed on the right desk and the left desk both.

20 Fig 5 is an illustrative view of a swingable desk having an attachable slant member.

Fig 6 is an illustrative view of a restriction means for rotational scope for a swingable member.

Fig 7 is a structural view of a swingable desk having a vertical member under the embodiment of slant member.

25 Fig 8 is a structural view of a swingable desk being formed as a type of H-shaped front leg.

Fig 9 is a structural view of a swingable desk being formed on a wheel chair.

30 Fig 10 is an illustrative view for a locking device of the separable desk under the present invention.

Fig 11 is a combined state of the locking device related to Fig 10.

Fig 12 is an illustrative view of a convex and concave shape of locking

device.

Fig 13 is an illustrative view of a sliding means for gap adjustment according to the present invention.

Fig 14 is an illustrative view of a foldable desk according to the present
5 invention.

Fig 15 is a schematic state view for the practical use of a foldable desk related to Fig 14.

Fig 16 is a sectional state view for the practical use of a foldable desk related to Fig 14.

10 Fig 17 is a schematic state view under the folding state of a foldable desk related to Fig 14.

Fig 18 is a detail explanatory view of a foldable desk showing the spreading state of the rotatable part 29 of Fig 17.

Fig 19 is a schematic state view under the vertical storage state of a
15 foldable desk.

Fig 20 is a structural view of a foldable desk showing a groove for a desk cabinet.

Fig 21 is a schematic state view for the practical use of a foldable desk being formed a groove for a desk cabinet related to Fig 20.

20 Fig 22 is a structural view of a pivotal desk having a centering pin.

Fig 23 is a schematic state view for the practical use of the pivotal desk related to Fig 22.

Fig 24 is a structural view of a foldable desk showing a hinge member being formed at the central position of chair frame.

25 Fig 25 is a structural view of the separable desk having a supporting edges according to the present invention.

Fig 26 is an illustrative view of a swingable member according to the present invention.

30 Fig 27 is an illustrative view of a foldable chair having swingable and foldable function.

Fig 28 is an illustrative view of a swingable and foldable desk.

Fig 29 is an explanatory view showing the vertical storage state of a

foldable desk.

Fig 30 is a combined desk having chair according to the prior art.

5 Best Mode for Carrying Out the Invention

Fig 1 is an illustrative view for a swingable desk being formed as a separable desk.

As shown on the Fig. 1, a book supporting panel 5 and a cup hole 6 are devised to form on the surface of separable desk with a left desk 2, and the left
10 desk is supported by a supporting member 7 which is connected to a slant member 4 by a swingable member 8.

The left desk and the supporting member of the left desk both are swingable about the axis of swing (S) by the swingable member.

Samely the right desk is to be supported by a supporting member 7 of the
15 right desk and the supporting member both is swingable about the axis of swing (S) by the swingable member.

The boundary between the left desk and the right desk is designed to form a supporting edge so that one part of desk supports the other part of desk respectively.

20 At least one desk part of the separable desk splittable into the right or left direction is equipped with the swingable member in order to facilitate user's coming in and out from chair. Of course, it would be more convenient to user if the both desk are designed to equip the swingable member.

Fig 2 is an explanatory drawing for Fig. 1.

25 As shown on the figure 2, one can realize that a supporting edge 9 is devised to form along the boundary of the right desk and the left desk, and the supporting member of the right desk is swingable about the axis of swing (S) with a swingable member of the right desk.

Fig 3 and Fig 4 are illustrative views for a swingable desk being formed on
30 a foldable chair.

Fig 3 shows an illustrative view for a foldable chair in which only the left desk is working but the right desk is not operating for the swingable motion.

Fig 4 shows an illustrative view of a foldable chair in which both of the left desk and the right desk are working for the swingable motion.

Fig 5 is an illustrative view of a swingable desk having an attachable slant member.

5 As shown on the figure 5, the slant member 4 according to the present illustration is designed to attach or detach on the seat of chair frame depending on usages.

Particularly, a swingable member 8 being rotatively combined to a slant member is devised so as to restore its original position in a smooth way using air-
10 pressure or hydraulic pressure.

Fig 6 is an illustrative view of a restriction mean for rotational scope for the swingable member.

A restriction means for rotational scope under the present invention is defined to restrict the rotational range of the swingable member 8 within the preset
15 scope. The detail constitution comprises an elongate hole 10 and a protrusion member 11 being installed within the elongate hole so that the rotation of swingable member is restricted within the preset range.

Fig 7 is a structural view of a swingable desk having a vertical member under the embodiment of slant member.

20 As mentioned, a vertical member 15 as a special form of a slant member is referred when the slant member make a right angle. For this special case, the rotational axis of the swingable member 12 make a right angle also. Accordingly the desk supporting member 13 which supports the combined desk rotates along the horizontal surface pivoting the vertical axis.

25 If the vertical member is adapted for the slant member as a special case, it is advantageous that it provides the horizontal rotating motion of desk and accordingly it is no necessary for shifting or moving things on the desk while coming in and out from chair.

Fig 8 is a structural view of a swingable desk being formed as a type of the
30 H-shaped front leg.

Two front legs 17,18 are designed to configure as a linear or a curvilinear form, and these two legs are connected by a coupling member 16 to form a H-

shape appearance. In this case, in order to enhance the stability and durability, a bottom coupling member 19 to put user's foot is formed at the bottom portion of the H-shape front legs. Two rear legs are devised to connect directly to the above mentioned coupling member 16 or the front legs and the swingable member 8 are
5 detachably attached on the upper edge of the H-shaped front legs 17, 18 for the rotational movement of separable desk.

Fig 9 is a structural view of a swingable desk being formed on a wheel chair.

The right desk and left desk are formed at the front direction of a wheel
10 chair 20 and these separable desk are openable with the installation of the swingable member 8.

Fig 10 is an illustrative view for a locking device of the separable desk under the present invention.

As shown on the figure, the locking device 21, 22 of the separable desk is
15 formed along the boundary between the left desk 2 and the right desk.

The locking device of separable desk comprises a left locking device 21 and a right locking device 22. The left locking device 21 is combined with the right locking device 22 resulting the edge can be covered to the edge of the right desk. Similarly, the right locking device 22 is combined with the left locking device
20 22 resulting the edge can be covered to the edge of the left desk.

Fig 11 is a combined state of the locking device related to Fig 10.

The locking device for the separable desk is devised to lock alternately one after another along the boundary between the left locking device 21 and the right locking device 22.

25 As shown on the figure, if the left desk 2 are forced to press downwardly by a weight, the left locking device 21 being formed on the bottom of the left desk reduces the forced weight by distributing the weight to the right desk 1 through the alternating combination of the locking devices. Samely, if the right desk 1 are forced to press downwardly by a weight, the right locking device 22 being formed
30 on the bottom of the right desk reduces the forced weight by distributing the weight to left desk 2 through the alternating combination of the locking devices.

Fig 12 is an illustrative view of a convex and concave shape of locking

device.

As an illustration of the embodiment of the locking device under the present invention, a convex and concave shape of locking device 23, 24 is devised on the separable desk having a plurality of convex portion and concave portion
5 respectively for making the alternating combination of the locking devices. This convex and concave shape of locking device being formed on the left desk 4 and the right desk 7 is designed to combine as a male-female combination.

Fig 13 is an illustrative view of a sliding mean for gap adjustment according to the present invention.

10 It is desirable that the desk position can be adjustable along the back and forth direction depending on physical condition of user.

For this purpose, a sliding member 26 is formed at the below of the separable desk 25. At the bottom of the sliding member, a slide support member 27 is to be formed for the sliding operation of the sliding member.

15 The above mentioned slide support member is secured at the bottom of the separable desk with a desk fixing member.

Without varying the embodiment of the desk gap adjustment relative to a user's position seated on chair as mentioned the above, the present invention also includes an application of the sliding member being installed on the bottom of seat
20 for the slidable adjustment between the separable desk and the seat of chair.

Fig 14 is an illustrative view of a foldable desk according to the present invention.

A foldable desk according to an embodiment of the present invention is directed to provide an operational facility for coming in and out from chair in a
25 convenient way to user, and the foldable desk is also aimed to provide and to define a structural member to comprise a fixed part 28 and a rotatable part 29.

The above mentioned two parts are connected with a hinge member 30 in order to broaden the desk surface in maximum by spreading the rotatable part from the fixed part.

30 The above mentioned fixed part is connected to a lateral frame of chair 31 through a desk rotating member 32. The above mentioned desk rotating member 32 is rotatable relative to the lateral frame of chair and a cushion 33 is formed at

the inner part of the rotating member. Of course, the fixed part can be connected directly to the later frame of chair without passing the desk fixing member.

In the case of using the separable desk, one can broaden the desk surface by spreading the rotatable part 29 and in the case of closing the separable desk,
5 one can narrow the size of desk by folding the rotatable part 29.

The foldable desk according to the present invention can be formed at only one part of chair frame or also can be formed at the both parts of chair frame without varying the embodiment of the present invention.

Fig 15 is a sectional state view for the practical use of a foldable desk
10 related to Fig 14.

The surface area of the foldable desk increases with the spreading of the rotatable part 29. The foldable desk is desirable to make a horizontal comparing with the formation of seat. In addition, in the case of only one foldable desk installation to chair frame, one can also find the enough space for the surface area
15 of desk with spreading of the rotatable part 29.

Fig 16 is a sectional state view for the practical use of a foldable desk related to Fig 14.

The two rotatable part 29 are formed to contact each other.

In order to support the left rotatable part by the right rotatable part and to
20 support the right rotatable part by the left rotatable part respectively, a supporting edge 34 is designed to form along the contact portion of the above mentioned rotatable parts.

The supporting edge 34 is formed at one of the rotatable parts as shown on the figure but the constitution of the supporting edge can be diverse with the
25 rotatable part 29 without restricting the embodiment of the present invention.

Fig 17 is a schematic state view under the folding state of a foldable desk related to Fig 14.

The length adjustment along the back and forth direction between user and desk can be accomplished the sliding motion of a fixed part 28 through a slider 39
30 being connected to a desk rotating member 32

As shown on figure, the desk rotating member includes a lateral frame of chair and a horizontal groove 36 and a vertical groove 35 as coupling grooves are

formed on the above mentioned lateral frame.

A coupling device 38 being installed resiliently by a spring 37 is formed in the desk rotating member 32. The above mentioned coupling device is devised to fit with the above mentioned coupling grooves so as to fix a the desk rotating
5 member at a certain position of the lateral frame.

Fig 18 is a detail explanatory view of a foldable desk showing the spreading state of the rotatable part 29 of Fig 17. This demonstrates the spreaded state for the actual use of desk.

Fig 19 is a schematic state view under the vertical storage state of a
10 foldable desk.

In the case of storage for the foldable desk as shown on the figure, the foldable desk after folding is kept as a horizontal way or kept beside of the lateral position of chair frame as a vertical way.

In order to store the foldable desk beside of the lateral position of chair
15 frame as a vertical way, the desk rotating member after turning to the 90 degree is forced to couple at the vertical groove 35 with the decoupling state of the coupling device 38 at the horizontal groove 36.

This type of storage for the foldable desk means that the foldable desk is designed to kept at the lateral position of chair after folding the desk.

20 At this case of the vertical storage, the cushion 33 formed on the desk rotating member is located directing to upward so that the cushion can be used for the stay of arm.

Fig 20 is a structural view of a foldable desk showing a groove for a desk cabinet.

25 A groove 40 for keeping things or utensils can be formed at the rotatable part 30 of the foldable desk as shown on the figure. Accordingly, the groove for a desk cabinet can be shaped at the fixed part or the rotatable part of the foldable desk.

Fig 21 is a schematic state view for the practical use of a foldable desk
30 being formed a groove for a desk cabinet related to Fig 20.

Since the spreaded surface in upper direction of the rotating portion 40 forms a flat surface 41 after spreading the foldable desk, the foldable desk with the

embodiment of the desk cabinet is also useful for the purpose of the desk use.

Fig 22 is a structural view of a pivotal desk having a centering pin.

The pivotal desk as shown on the figure comprises a rotating part 42 and fixed part with a centering pin 43 so that the rotating part can be rotated about the
5 centering pin.

Fig 23 is a schematic state view for the practical use of the pivotal desk related to Fig 14.

The foldable desk according to the present invention can be formed at only one part of chair frame and also can be formed at the both parts of chair frame
10 without varying the embodiment of the present invention.

The pivotal desk as shown on figure is related to the spreaded state of the rotating part about the centering pin. Without varying the embodiment of the pivotal desk, the separable desk can be comprised that one part is to be formed as a foldable desk and the other part is a pivotal desk or both parts are to be formed
15 with the pivotal desk or the foldable desk separatively.

Fig 24 is a structural view of a foldable desk showing a hinge member being formed at the central position of chair frame.

Hereinbelow, a single foldable desk is defined as a foldable desk which is comprised with only one set of a fixed part and a rotatable part along the right &
20 the left-lateral frame.

As an illustration of the present embodiment, a desk cabinet can be formed at the below the fixed part as shown on the figure 24.

Fig 25 is a structural view of the separable desk having a supporting edge according to the present invention.

25 A supporting edge 45 along the boundary between the right and the left desk is devised to form so that it supports the separable desk cooperatively. And a locking device for the separable desk is devised to enhance the stability of the supporting edge and locking function of the right and the left desk.

A locking device for the separable desk can be devised as various ways. A
30 convex and concave type of locking device as shown on figure 12 is introduced for an example. For another example as shown on figure 25, a junction groove 46 is formed on one part of the separable desk so that a junction protrusion 47 is

combined to the groove for making the locking device for the separable desk.

Fig 26 is an illustrative view of a swingable member according to the present invention.

A swingable member is connected to a slant member being installed on chair frame and it is devised to rotate about the axis of the slant member. And a desk supporting member being connected with the separable desk supports the separable desk with the above mentioned swingable member.

The most representative illustration as a type of penetration is related to the figure 16 (A). The slant member 50 penetrates the swingable member 51 as shown on the figure. A support ring 52 is equipped at the bottom of the slant member so that the swingable member is not sliding-down from the slant member by its own weight. A desk supporting member 53 is connected to the lateral part of the swingable member.

The most representative illustration as a type of non-penetration is related to the figure 16 (B). In this case, a swingable member 55 having a shape of cap is formed at the end part of a slant member 54 resulting the non-penetration of the slant member. A desk supporting member 53 is connected to the lateral part of the swingable member.

A restriction means for rotational scope for the swingable member can be devised for the limit of rotational motion related to the swingable member.

In addition, a swingable member is devised as an assembly type so as to attach and detach with a locking tool, for an example a bolt and nut, conveniently to a slant member.

Fig 27 is an illustrative view of a foldable chair having swingable and foldable function.

A separable desk 1, 2 is formed at the right frame and the left frame of the foldable chair respectively, and a swingable member is connected to each part of the separable desk 58 through a desk supporting member 60.

The above mentioned swingable member is rotatively connected to the frame of foldable chair. For this case, a desk supporting member is designed to equip with a folding member in order to make it foldable with the folding process of the foldable chair frame.

The folding member, as an illustration, a spring can be resiliently installed between the desk supporting member and the swingable member to support or fold the separable desk through the actuation of the supporting member.

In addition, for another example, a latch gear can be formed for an
5 illustration of the folding member.

As for an opening & closing means for coming in and out from chair, a desk rotating member as shown on the figure 14 or the rotational motion by a swingable member also can be possible.

Accordingly, the desk rotating member 59 being installed between a desk
10 1,2 and a desk supporting member 60 can make a gate for sitting by the rotational actuation of the desk rotating member.

The rotation of separable desk, according to the present embodiment related to the figure 27, can be possible with the rotational motion of the desk rotating member or the swing motion of the swingable member.

15 Fig 28 is an illustrative view of a swingable and foldable desk.

In order to facilitate the operation of the opening & closing desk, a combined embodiment in connection with a swingable desk and foldable desk can be devised.

A foldable desk having a swingable member is provided for the swingable
20 desk and foldable desk as shown on the figure. The above mentioned swingable member is devised to connect and to rotate about a slant member. In this case, the swingable member also can be comprised to attach and to detach conveniently from the slant member.

As another method for the combination, of course, a slant member having
25 a swingable member can be comprised to attach and to detach from a chair frame.

In detail, a foldable desk 61, 62 having the fixed part and the rotating part is connected to a desk supporting member 63 and the desk supporting member is designed to combine a swingable member 64. The swingable member is rotatively combined to a slant member 65 being located on the lateral side of chair frame.

30 Fig 29 is an explanatory view showing the vertical storage state of a foldable desk.

A foldable desk having a groove 40 for desk cabinet is supported by a

desk rotating member 32 and comprised to be rotatable.

The foldable desk is forced to rotate with the rotational actuation of the rotating member 32 and designed to store at the lateral position of chair frame along the vertical way with the perpendicular of the foldable desk.

5 The cushion formed on the desk rotating member directing in the upward direction at the vertical storage state can be used for the stay of arm.

Fig 30 is a combined desk having chair according to the prior art.

The prior art discloses a combined desk 41 attached on a right or a left part of a foldable chair. The combined desk according to the prior art is also
10 foldable simultaneously in connection with the foldable chair. In order words, more specifically speaking, a seat combined to the foldable chair equipped with an interlocking linkage 42 makes available simultaneous folding mechanism with the actuation of the seat member of chair into the upper directional motion since the interaction of the seat member is achieved with the member of interlocking linkage.

15 But this kind of a foldable desk in the prior art has a problem in that it does not provide sufficient area for working space due to the lack of symmetrical structure. If the size of desk increase, the structure of desk with a chair according to the prior art would be unstable. Furthermore this kind of prior art obviously restricts the coming in and out from chair because there is no functional structure
20 for opening & closing of the combined desk.

Industrial Applicability

A chair with a table according to the present invention is devised to provide the maximized area of the separable desk and two separable desk directing to the
25 symmetrical structure, and moreover to designed to provide comfortable and stable feeling in the psychological meaning by the structural constitution in which one part of the separable desk at least is devised to open and close the separable desk conveniently for coming in and out to user from chair.

Claims:

1. A chair with a table, comprising :

a chair frame, a separable desk at least being combined to said chair frame, an opening & closing means at least being comprised for opening and
5 restoring said separable desk so as to provide suitable space for coming in and out to user, and

said chair with a table is characterized in that said opening & closing means is comprised with a swingable desk, a foldable desk having a fixed part and a rotatable part or a swingable & foldable desk.

10

2. The chair with a table as claimed in claim 1 further comprising :

said separable desk being comprised is characterized in that one part is to be formed with said opening & closing means and the other part is to be formed without said opening & closing means.

15

3. The chair with a table as claimed in claim 1 further comprising :

said separable desk being comprised is characterized in that one part is to be formed with said opening & closing means and the other part is also to be formed with said opening & closing means.

20

4. The chair with a table as claimed in claim 1 further comprising :

said separable desk being comprised is characterized in that only one part is to be formed with said opening & closing means without constituting the other part.

25

5. The chair with a table as claimed in claim 1 or claim 4 further comprising :

said swingable desk being comprised is characterized in that a swingable member is connected to a slant member.

30

6. The chair with a table as claimed in claim 5 further comprising :

said swingable member is characterized in that it is designed to combine

detachably to said slant member.

7. The chair with a table as claimed in claim 5 further comprising :
said slant member is characterized in that it is designed to combine
5 detachably to said chair frame.

8. The chair with a table as claimed in claim 5 further comprising :
said slant member is characterized in that it is designed to form a vertical
member.

10

9. The chair with a table as claimed in claim 5 further comprising :
said slant member being comprised is characterized in that two front legs
are connected by a connection member to form a H-shaped upper end.

10. The chair with a table as claimed in claim 1 or claim 4 further
comprising :
said swingable desk is characterized in that it is designed to include a
restriction means for rotational scope.

11. The chair with a table as claimed in claim 1 or claim 4 further
comprising :
said chair with a table being comprised is characterized in that said
separable desk having a sliding means for gap adjustment is to be slideable
relative to said chair frame according to back and forth direction, or a seat having a
25 sliding means for gap adjustment is to be also slideable relative to said chair frame
according to back and forth direction.

12. The chair with a table as claimed in claim 1 or claim 4 further
comprising :
30 said chair with a table being comprised is characterized in that a
supporting edge along the contact area of right and left separable desk is
designed to form so that one part of said separable desk supports the other part of

said separable desk.

13. The chair with a table as claimed in claim 1 or claim 4 further comprising :

5 said chair with a table being comprised is characterized in that a locking device of separable desk for locking said separable desk is to be formed along the boundary between said left desk and said right desk.

14 The chair with a table as claimed in claim 13 further comprising :

10 said locking device of separable desk is characterized in that it is designed to form an alternating structure having concave and convex portion to join one after another.

15. The chair with a table as claimed in claim 1 or claim 4 further

15 comprising :

 said opening & closing means for said foldable desk is characterized in that it is designed to include a fixed part and a rotatable part.

16. The chair with a table as claimed in claim 15 further comprising :

20 said fixed part or said rotatable part is characterized in that it is designed to form a groove for a desk cabinet.

17. The chair with a table as claimed in claim 15 further comprising :

 said foldable table being comprised is characterized in that it is designed to
25 detachably combine with said chair frame.

18. The chair with a table as claimed in claim 15 further comprising :

 said foldable table being comprised is characterized in that said fixed part
of said foldable desk is designed to combine directly at a lateral frame of said chair
30 frame.

18. The chair with a table as claimed in claim 15 further comprising :

22

said foldable table being comprised is characterized in that said fixed part of said foldable table is designed to combine at a lateral frame of said chair frame through a desk rotating member.

5 20. A combined desk with foldable chair, comprising :

a foldable chair frame, a separable desk at least being combined to said foldable chair frame, an opening & closing means at least being comprised for opening and restoring said separable desk so as to provide suitable space for coming in and out to user, and

10 said combined desk with foldable chair is characterized in that said opening & closing means is comprised with a swingable desk, a foldable desk having a fixed part and a rotatable part or a swingable & foldable desk.

15 21. The combined desk with foldable chair as claimed in claim 20 further comprising :

said separable desk being comprised is characterized in that one part is to be formed with said opening & closing means and the other part is to be formed without said opening & closing means.

20 22. The combined desk with foldable chair as claimed in claim 20 further comprising :

said separable desk being comprised is characterized in that one part is to be formed with said opening & closing means and the other part is also to be formed with said opening & closing means.

25

23. The combined desk with foldable chair as claimed in claim 20 further comprising :

25 said separable desk being comprised is characterized in that only one part is to be formed with said opening & closing means without constituting the other
30 part.

23

24. A combined desk with wheel chair, comprising :

a wheel chair frame, a separable desk at least being combined to said wheel chair frame, an opening & closing means at least being comprised for opening and restoring said separable desk so as to provide suitable space for
5 coming in and out to user, and

said combined desk with wheel chair is characterized in that said opening & closing means is comprised with a swingable desk, a foldable desk having a fixed part and a rotatable part or a swingable & foldable desk.

10

1/14

Fig 1

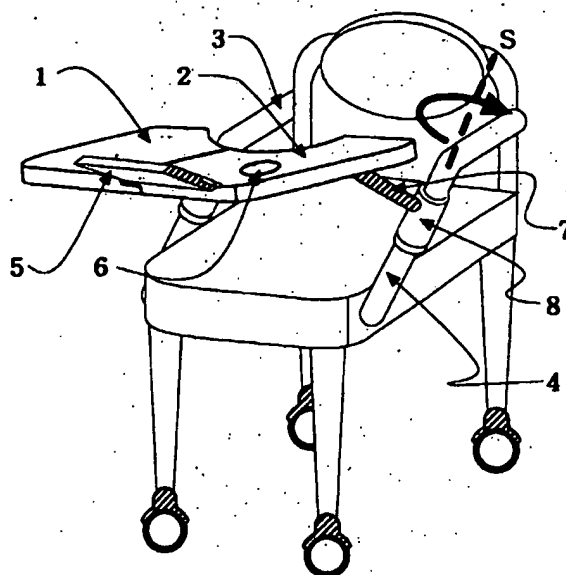
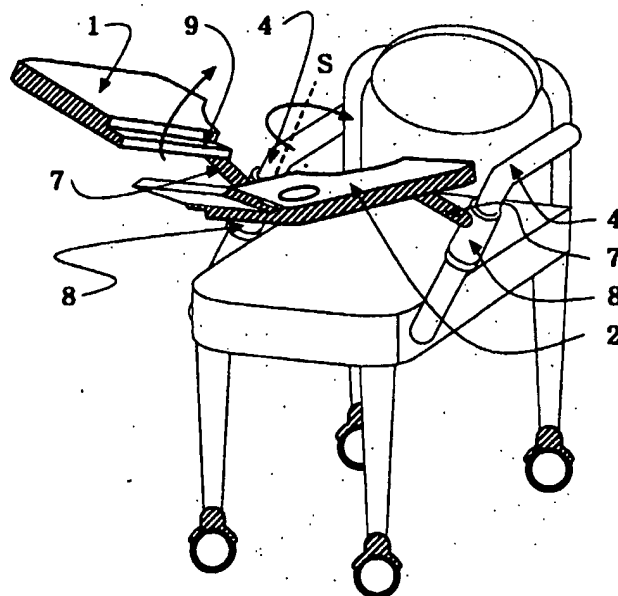


Fig 2



2/14

Fig 3

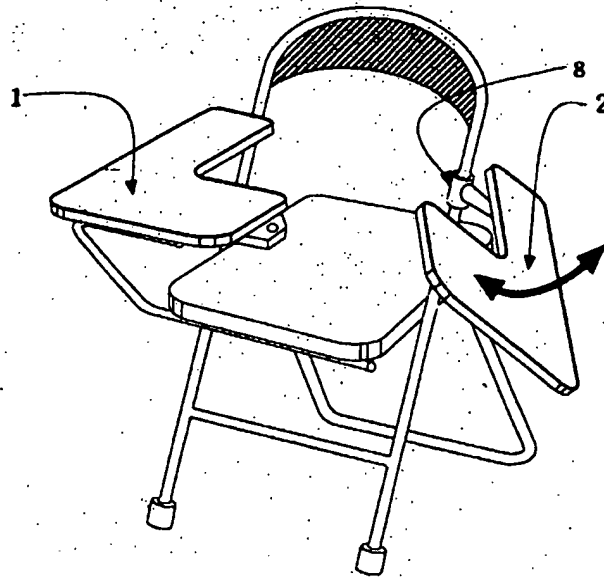
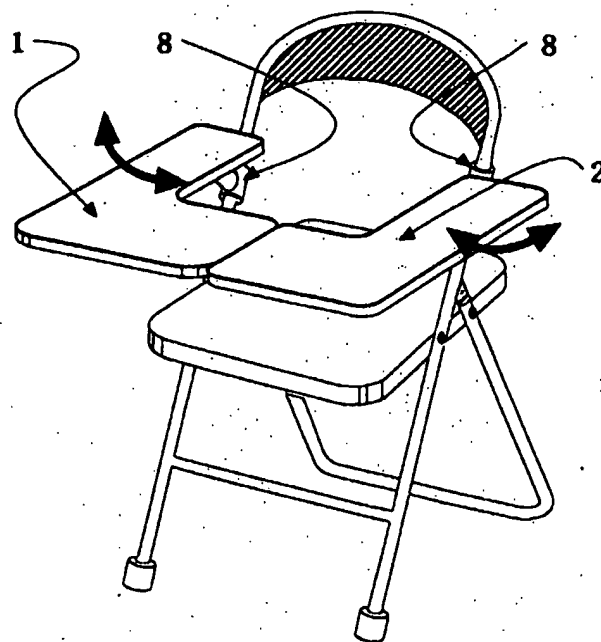


Fig 4



3/14

Fig 5

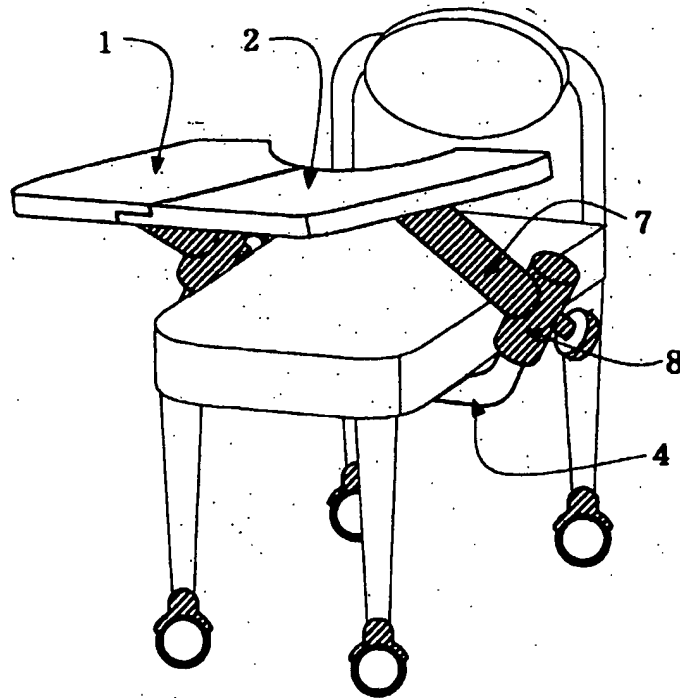
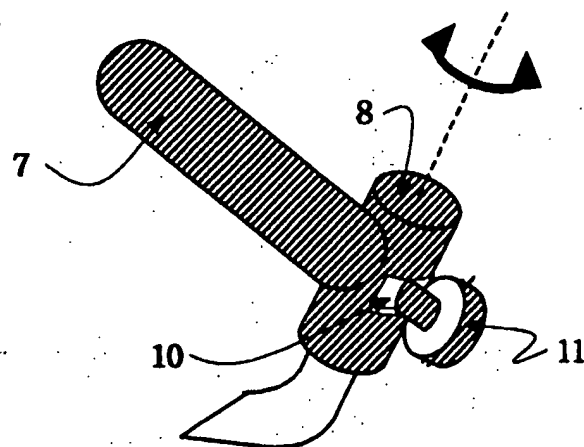


Fig 6



4/14

Fig 7

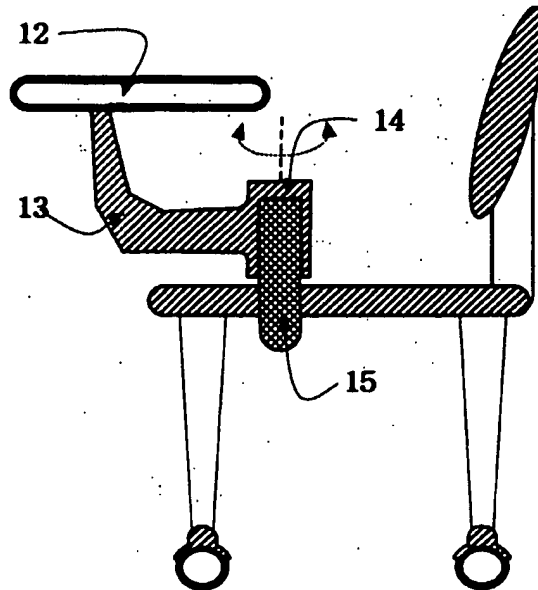
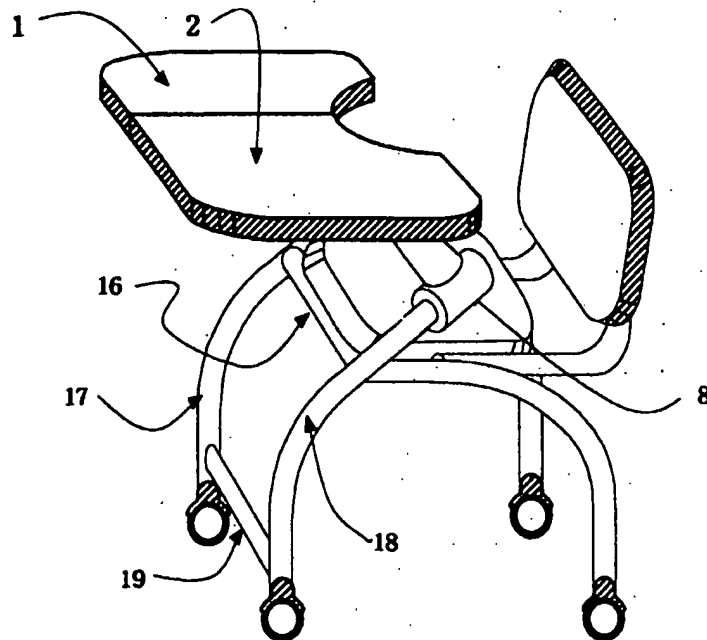


Fig 8



5/14

Fig 9

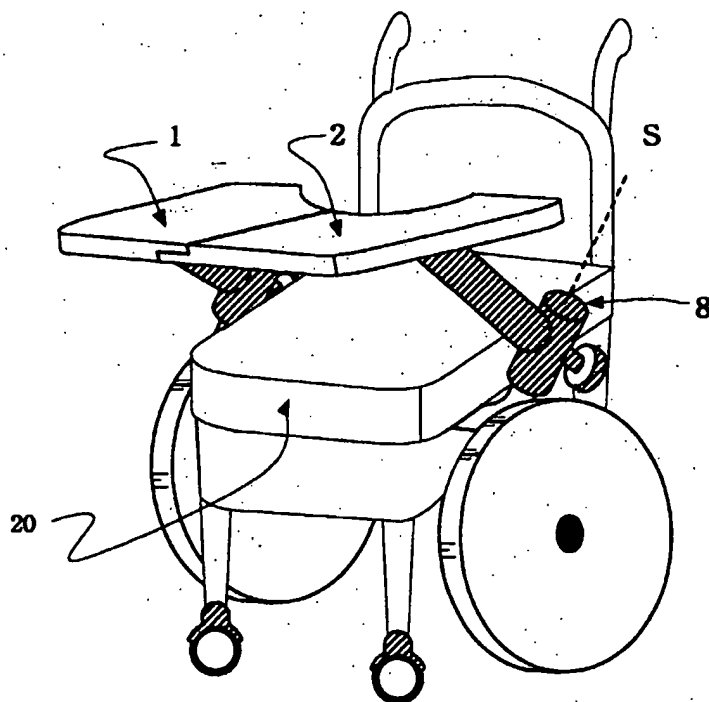
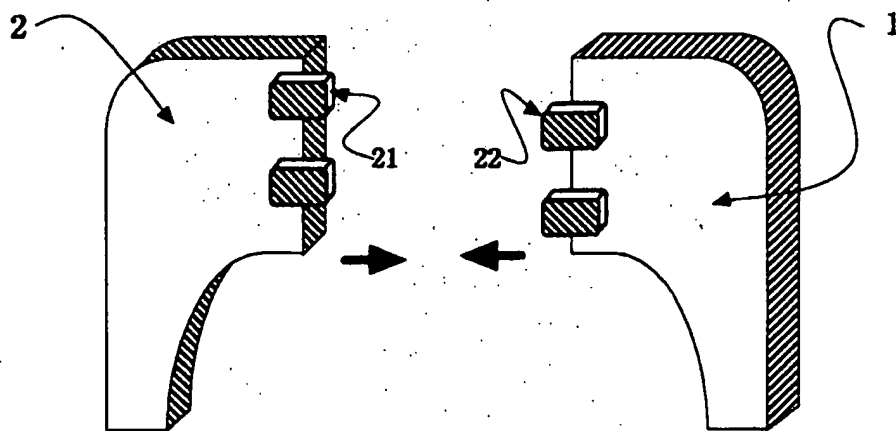


Fig 10



6/14

Fig 11

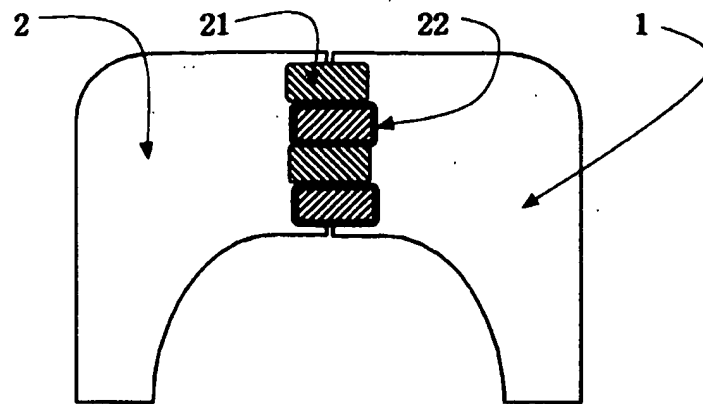
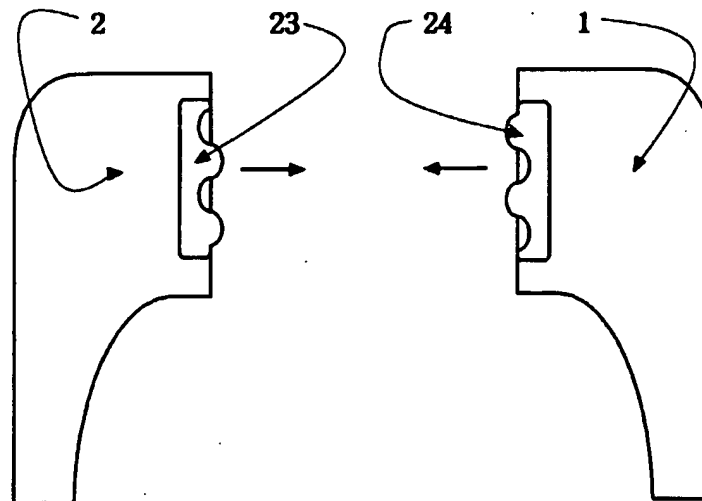


Fig 12



7/14

Fig 13

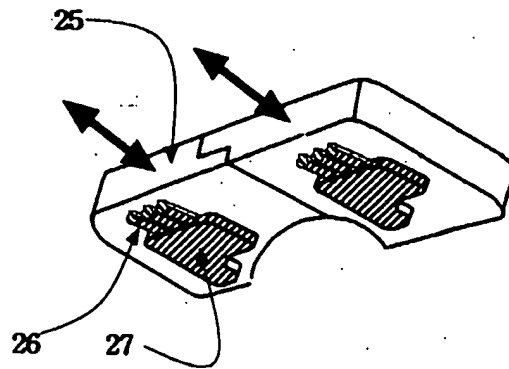
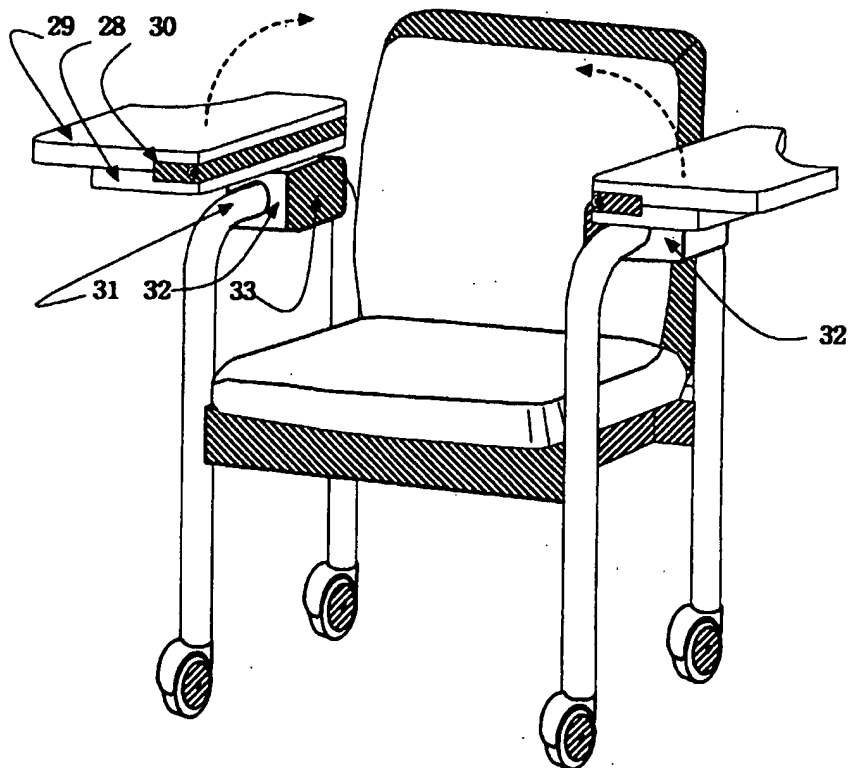


Fig 14



8/14

Fig 15

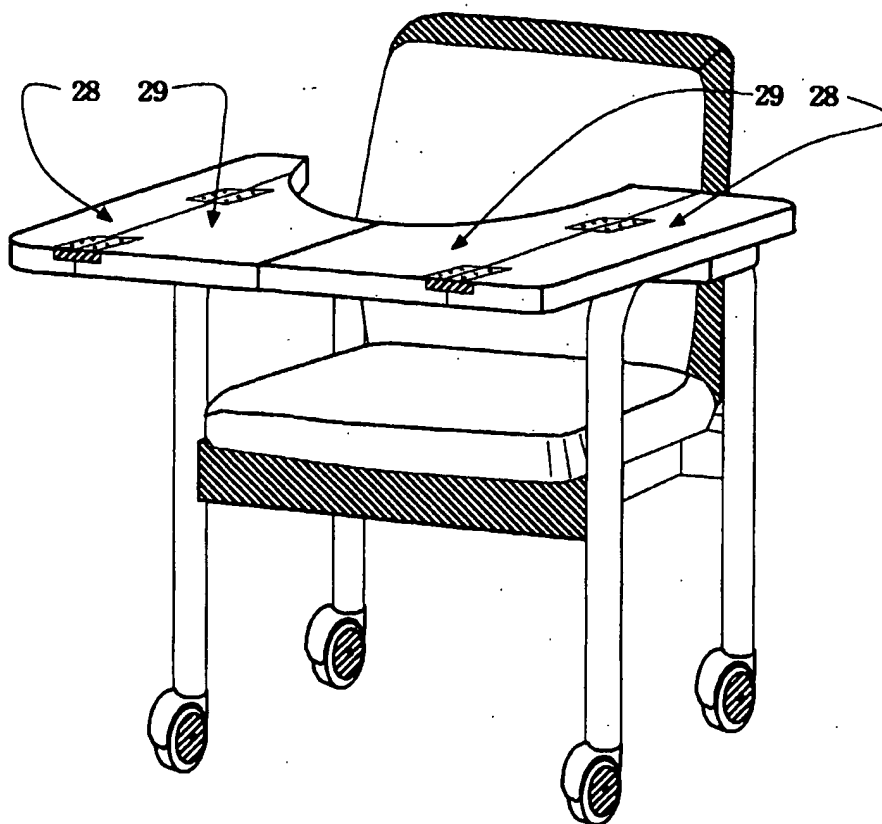
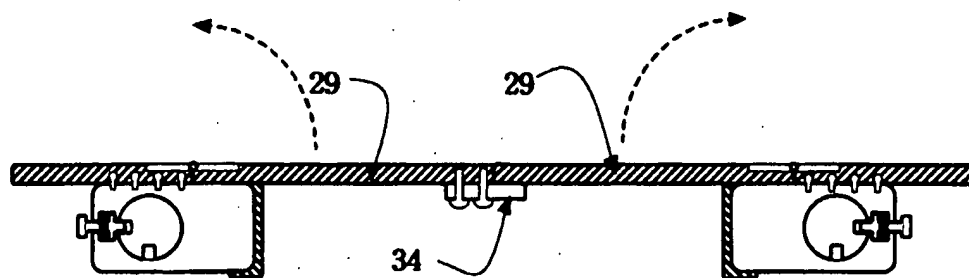


Fig 16



9/14

Fig 17

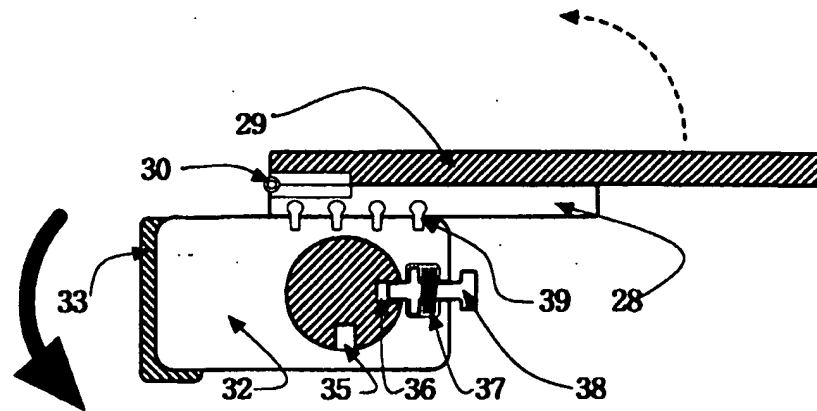
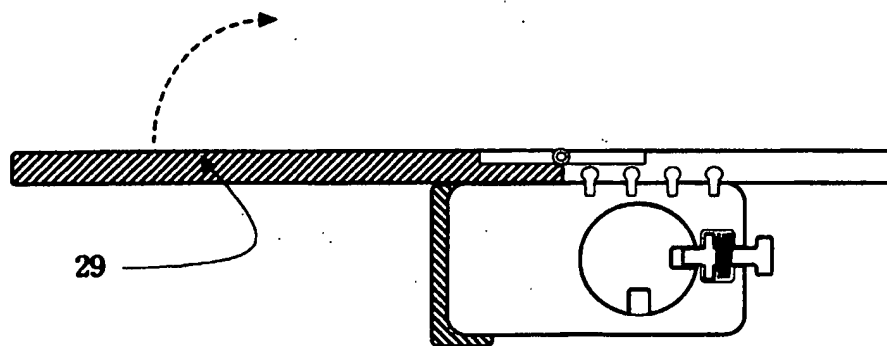


Fig 18



10/14

Fig 19

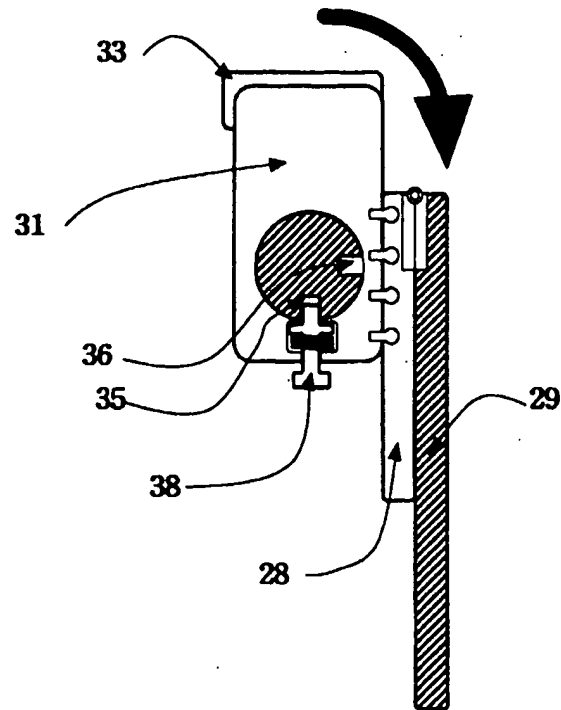
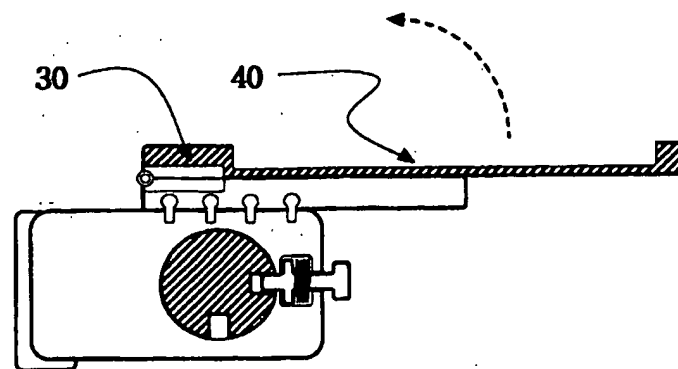


Fig 20



11/14

Fig 21

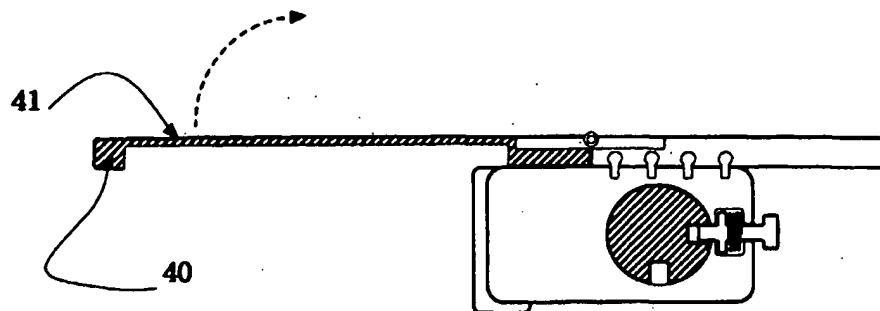


Fig 22

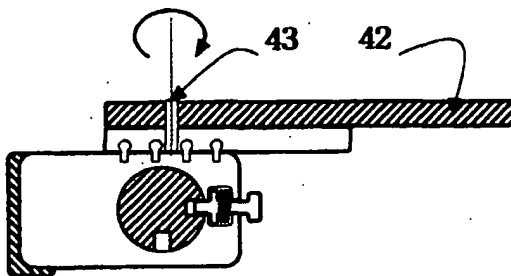
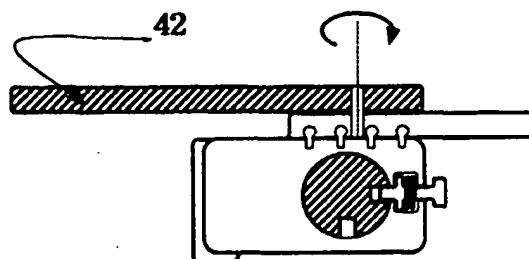


Fig 23



12/14

Fig 24

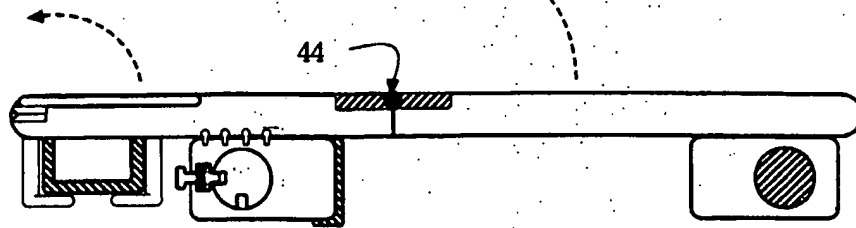


Fig 25

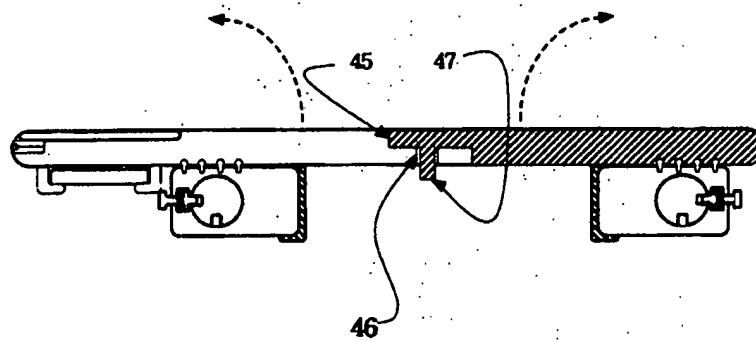
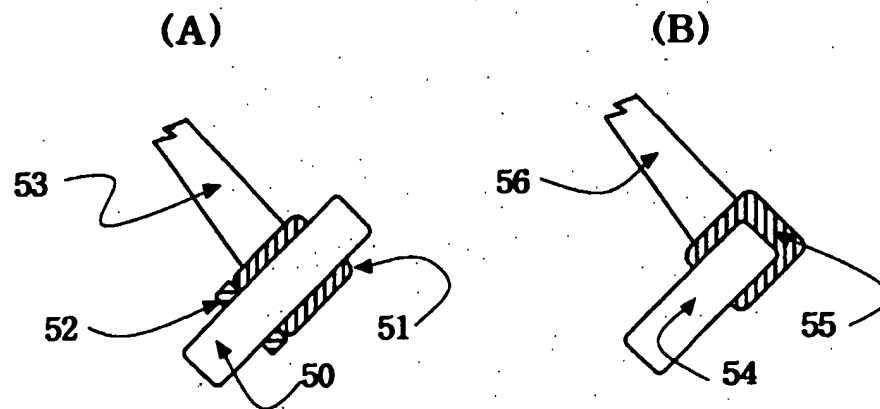


Fig 26



13/14

Fig 27

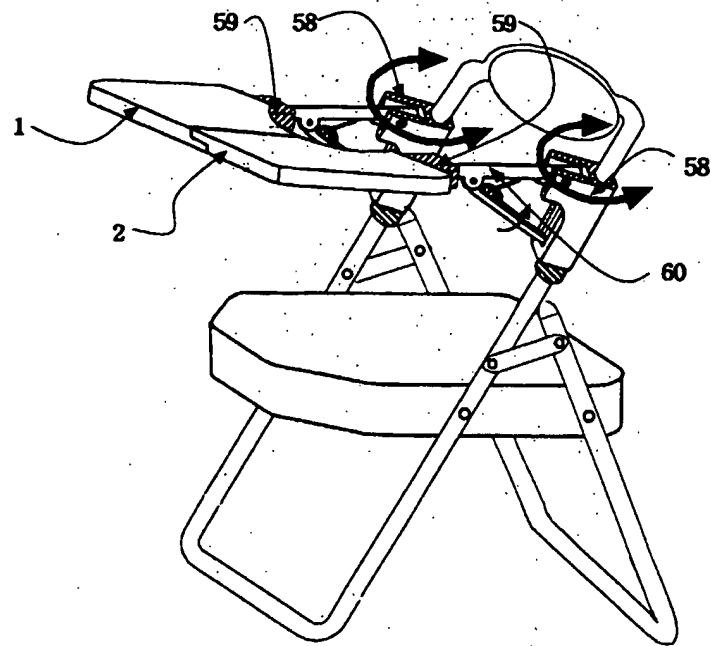
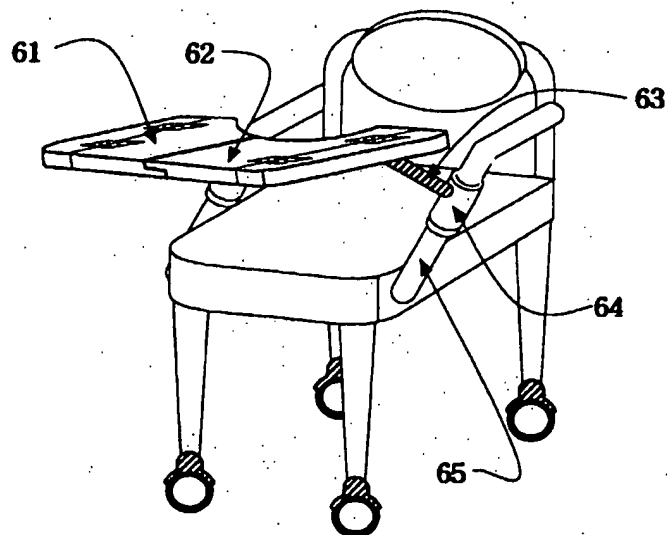


Fig 28



14/14

Fig 29

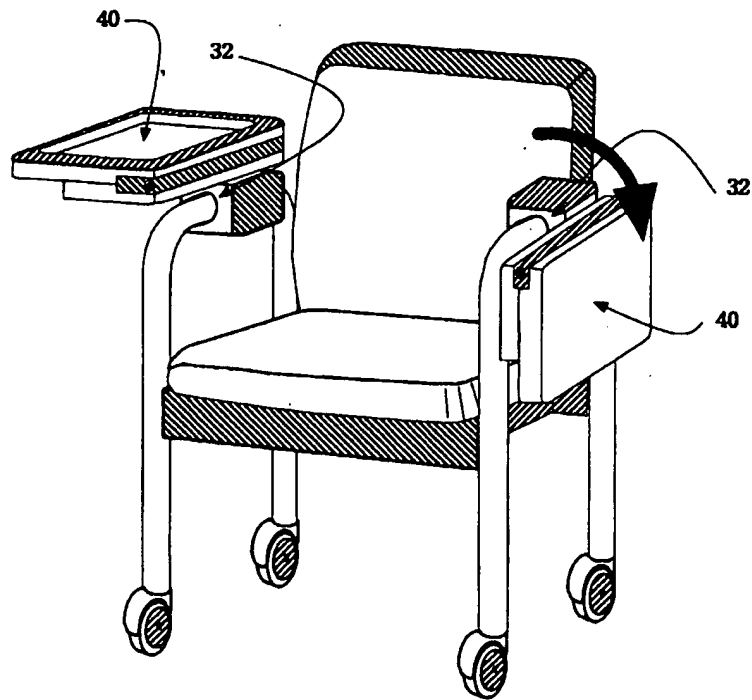
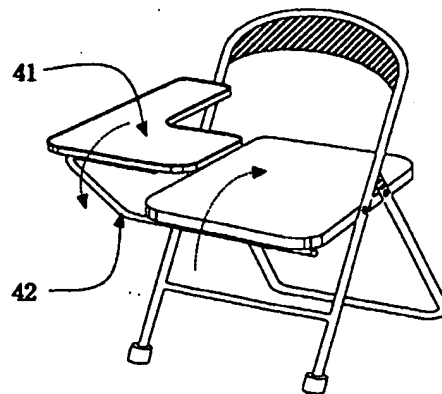




Fig 30



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR02/01523

A. CLASSIFICATION OF SUBJECT MATTER		
IPC7 A47B 3/14		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC A47B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched KOREAN PATENTS AND APPLICATIONS FOR INVENTIONS SINCE 1975 KOREAN UTILITY MODELS AND APPLICATIONS FOR UTILITY MODELS SINCE 1975		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) KIPASS (KOREAN INTELLECTUAL PROPERTY OFFICE PATENT SEARCH SYSTEM)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4591206 A (ELVERN G. PRIBBLE) 27 MAY 1986 (27.05.1986) See the whole document	1, 4, 20, 23, 24
A	US 4779884 A (FRANK E. MINATI) 25 OCTOBER 1988 (25.10.1988) See the whole document	1, 4, 20, 23, 24
A	US 4427232 A (RICHARD K. MALM) 24 JANUARY 1984 (24.01.1984) See the whole document	1, 4, 20, 23, 24
A	JP 11-128024 A (LEADING EDGE DESIGN) 18 MAY 1999 (18.05.1999) See the whole document	1, 4, 20, 23, 24
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 25 NOVEMBER 2002 (25.11.2002)		Date of mailing of the international search report 25 NOVEMBER 2002 (25.11.2002)
Name and mailing address of the ISA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140		Authorized officer AHN, Jun Ho Telephone No. 82-42-481-5699 

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR02/01523

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4591206 A	27.05.1986	NONE	
US 4779884 A	25.10.1988	NONE	
US 4427232 A	24.01.1984	NONE	
JP 11-128024 A	18.05.1999	NONE	